

Natural Rearing Newsletter ©

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FOR THOSE THAT CHOOSE TO THINK FOR THEMSELVES

From The Desk Of: MARINA ZACHARIAS

HYPERTHERMIA CANCER TREATMENT

The natural reaction of the body when it is fighting an infection is to raise the internal temperature, commonly called a "fever". Holistic practitioners have long maintained that this reaction should be supported rather than suppressed.

The technique of purposely elevating the temperature to stimulate the immune systems' ability to fight cancer is now being used with an exceptional rate of success by many countries of Western civilization. The Twentieth Annual Congress on Hyperthermia (held in Baden-Baden, Germany inn October 1997) lasted for three days. Massive amounts of information were presented by medical speakers from most Western countries with the exception of the USA.

Hyperthermia (the use of heat in the treatment of cancer) is delivered to the patient by three main approaches in clinical practice:

1. *Whole body hyperthermia* (WBH) in which systemic temperature is raised to at least 107.6°F;
2. *Regional hyperthermia* in which the part of the body containing the malignancy is heated either by perfusion with heated fluids or by deep heat applications;
3. *Localized hyperthermia* in which the heat is focused directly on the tumor target.

For therapeutic purposes, the most effective heat range is 107.6°F to 111.2°F. Ideal is 108°F. Below this range little cellular damage occurs; above it damage to normal tissue may result. In many cases hyperthermia is used in conjunction with other cancer fighting modalities and exhibits a synergistic effect.

How effective is it? Judging from clinical reports, it should be the foremost approach to consider! For example, a clinic in Germany has more than five years' clinical experience with the use of systemic whole body hyperthermia and has treated over 2,000 patients. The remission rate for patients with advanced stages of cancer averages 80%. (1)

With patients that exhibit advanced tumors of the liver, lung, pancreas, bone, stomach, kidneys, prostate, peritoneum, mediastinum, large intestine, and other sites where cancer has already broken through the intestinal wall, the St. George Klinik in Munich uses a combination of low dose chemotherapy and systemic whole body hyperthermia.

While hyperthermia is scarcely used in America, it's ironic that the equipment used at the above German clinic was originally developed by Harry Leveen, MD from South Carolina. He began building hyperthermia devices for delivery in the United States over thirty years ago. However the FDA never approved the units for sale in the USA and consequently banned them here. Dr. Leveen was forced to ship them out of the country--in this case the United Kingdom from where they were sold to various countries in Europe and to Japan.

In the United States, the first serious work utilizing elevated temperatures to treat cancer is credited to William B. Coley, MD of New York. In 1906 Dr. Coley published a description of his research using bacterial toxins to raise the body's temperature. It took him almost 20 years to develop and apply clinically what we know today as "Coley's toxins". He used these to induce fevers in cancerous patients ranging from 100.4°F to 105.8°F, with reported impressive results during three decades of treatment.

I'm not aware of any veterinarian using hyperthermia in their practice but if you or your vet. would like more information about it I would suggest contacting "Survive Until A Cure, Inc."--a non profit foundation. Phone: (203) 227-5433 or E-Mail: survive@sprynet.com.

IN THIS ISSUE

Hyperthermia Cancer Treatment
Drugs in Drinking Water?
A Gold Star for the U.S.D.A.
Nutraceuticals
Garlic--The Medicine of the Ancients
Mailbox
Magnesium

DRUGS IN DRINKING WATER?

Good grief--what next? I'm sure you are all aware of the extent of chemical contamination in this nations' drinking water supply. Now there is a strong reason to believe that drugs are also making it into our water.

Cardiology Today published an article, "Pharmaceutical Drugs Found in European Water Sources". Evidently new studies are finding evidence of cholesterol-lowering drugs, antibiotics, analgesics, antiseptics, beta-blocker heart drugs and other pharmaceuticals in drinking water, lakes, rivers and streams.

European scientists have determined that the drugs are coming from human waste. In some cases, 50% to 90% of an administered drug may be excreted from the body in its original or biologically active form. In other cases partially degraded drugs may be converted back into their active form through chemical reactions that occur in the environment.

Before you start thinking that this is just a European problem, you may want to consider that in the United States there is no monitoring of our water. There is no data for gauging the drug's potential toxicity to humans, wildlife, livestock, or aquatic ecosystems. We don't analyze or test. We don't know how many drugs are present, or to what extent!

It is interesting to note that the division of the Environmental Protection Agency that regulates sewage treatment plants has long known that one of the highest-volume contaminants emerging in sewage-plant effluent (especially in the morning) is caffeine. Does it make sense that all these coffee drinkers do not also have drug residue in their waste?

By now you are probably aware of the recent study published in the *Journal of the American Medical Association* that adverse drug reactions were ranked as the number 4 cause of death (1994) in the U.S.A. It was estimated that 100,000 patients die every year from bad reactions to legal prescription drugs. Another 2.2 million suffer side effects so severe that they are permanently disabled or require long hospital stays.

Doesn't it make you wonder how many hospitals are using tap water? What role does this play in the above statistics? Not a pleasant thought is it!



For those of you interested in animal communication, I would like to recommend a new book by Lydia Hiby, with Bonnie S. Weintraub, titled *Conversations with Animals*. Lydia is a well-known communicator that continues to astound skeptics with her accuracy.

I would also like to congratulate Eileen Geeson, author of a new book titled *The Complete Standard Poodle*. This gutsy lady mentions the use of "nosodes" as an alternative to vaccination.

(2)

A GOLD STAR FOR THE U.S.D.A.

It's not often that I have the chance to praise the actions of a government body but I am truly happy to report that the U.S. Department of Agriculture deserves a gold star for a new product they have developed.

They have come up with a spray made up of the normal bacteria that inhabit the gut of a healthy chicken. When sprayed on chickens, they preen their feathers and consume some of the spray. The normal or "good" bacteria get into the gut where they develop into thick flora of natural resistance to Salmonella, Campylobacter, Listeria, and Escherichia coli (the "bad" bacteria that cause all the salmonella-type outbreaks we have suffered through).

The new spray called *Preempt* is so effective, one treatment confers lifelong protection for 99% of chickens treated! This is a safe, non-toxic treatment that can cut down on food poisoning in humans and is really good news for all of us feeding chicken wings to our animals as part of our raw food diet.

I am very hopeful that the poultry industry will switch to this new probiotic therapy in place of the present heavy use of antibiotic treatment. Once again it's being proven that with healthy bacteria in the gut (like acidophilus, etc.) harmful bacteria simply cannot get a foothold.

The veterinary pathologist with the U.S.D.A. who designed Preempt has already predicted that there will be a similar product developed for pigs and calves. Wow! Wouldn't it be great to see the meat industry using natural, healthy methods for a change? It sure beats trying to irradiate the problem!

One of the major reasons for using a "raw food" diet is to maintain the balance of good flora in the gut. We all know that antibiotics wipe out the good as well as the bad bacteria and that this can cause all kinds of problems if the balance is not restored as quickly as possible. "Healthy" meat in the diet of our animals will certainly help all of us to realize our goals in natural rearing.

For those of you that have had difficulty in convincing others of the benefits of a raw diet, perhaps they will accept your advice to at least add a good quality probiotic and a digestive enzyme to the kibble they insist on using. If we can get them to help the digestive tract it will go a long way in minimizing the deleterious effects of a poor diet.

Because this new breakthrough in food handling was developed by the U.S.D.A. I am cautiously optimistic that it will come into broad usage in the industry. I know it will be a major blow to the pharmaceutical suppliers of antibiotics but only a government body has the clout to push a natural product to replace a drug.

Remember, one single treatment provided lifetime protection to chickens. If it works the same in animals (when developed) we will finally see a cost effective, natural therapy proven to be better than anything the drug world has offered.

NUTRACEUTICALS

With the rapid growth of interest in the "natural food" industry, there are some really big bucks being thrown around to create the illusion that "science" has identified, classified, isolated and purified every "active" element in the food we eat. It wasn't that long ago that the word *nutraceutical* was coined to identify nutritional supplements that are isolated fractions of phytochemicals and whole foods.

The "back room boys" take great delight in pointing to all the "research" describing the healthful benefits of the particular product they are pushing. The trouble is that most of the research in print refers to whole food rather than the purified fraction. This form of sneaky deception is used with great success (and evidently with impunity from prosecution for fraud) in selling millions of dollars worth of these products to the public.

For those that choose to think for themselves, the manufacturing of these isolated nutritional fractions raises lots of questions. The accepted dogma on synthetic vitamins is that "The body doesn't know the difference". It doesn't take much digging to blow this spin-doodle out of the water. So, what are the health benefits of these extracts of single components when compared to the whole food? Who really knows which ingredient in a healthy food is responsible for the therapeutic benefits? How will combinations of nutraceuticals react in the body? Will fractions cause imbalances or deficiencies of the other nutrients normally found in the food from which the nutraceutical is made? What are the results of long-term consumption of large amounts of purified nutraceuticals?

We know that foods have complex, interacting nutritional components that are loaded with a myriad of active nutrients and phytochemicals. Even the best of researchers do not have a real grasp on how the body uses all the individual chemicals found in foods.

Take the case of *sulforaphane*. Concentrated kale extract (made from the whole plant) is proven to be rich in sulforaphane. This cancer-fighter neutralizes up to 90% of carcinogenic agents from the body, thus reducing the rate of cancer in research mice and rats by up to 95%. But when the sulforaphane was purified out of kale plants and into a nutraceutical form, its cancer-fighting power was **reduced by 95%**, making it almost useless!

No nutraceutical or combination thereof will ever make up for a faulty diet. When a therapeutic dose of phytochemicals are needed to fight a particular disease, it is best to use food concentrates rather than nutraceuticals. What makes food concentrates completely different from nutraceuticals is that they contain the specific phytochemicals and nutrients in good quantity along with all the other ancillary nutritional factors that activate these nutrients in the body.

While it is easy and profitable to make nutraceuticals, it is extremely unlikely that they will perform as advertised.

GARLIC THE MEDICINE OF THE ANCIENTS

Throughout the history of many cultures, herbs have been used to please the palate and enliven the flavor of foods. But the value of herbs is more profound. Herbs offer a wide range of nutrients and health benefits, as well as flavor. Garlic is considered the most medicinal of all the culinary herbs.

The use of garlic has been traced as far back as the days of the cave man. Remains of this odoriferous herb have been found in caves inhabited 10,000 years ago. The first garlic prescription, however, was found chiseled in cuneiform on a Sumerian clay tablet dating back to 3000 B.C.

Ancient Egyptians were particularly fond of garlic. In fact, they so revered the pungent herb that solemn oaths were sworn on it in much the same way we swear on the Bible. Garlic was found in the tomb of King Tut. At that time 15 pounds of garlic bought a healthy male slave.

Garlic appears prominently in the world's oldest surviving medical text, the *Ebers Papyrus*. It was an ingredient in 22 remedies for headache, insect and scorpion bites, menstrual discomforts, intestinal worms, tumors, and heart problems.

In the past, garlic was also used to ward off evil spirits and witchcraft. Regardless of its purported use as a charm, garlic's medicinal uses have been documented for centuries. It has been a popular remedy for colds, sore throats, and coughs--either eaten raw or taken as a syrup, which was made by boiling garlic cloves and water for half a day. Physicians and herbalists prescribed garlic as a diuretic and for intestinal disorders and rheumatism. When plagues ravaged Europe, people ate garlic daily to protect against disease.

Researchers continue to amass evidence that garlic contains preventive and healing properties. The most active and medicinal elements in garlic are its sulphur compounds. Research has demonstrated that these sulphur compounds are the key to its antibiotic and antifungal action, its ability to prevent the liver from generating too much cholesterol, and its tendency to thin the blood and reduce clotting.

A main sulphur compound found in garlic is *alliin*, which has neither smell nor medicinal effects. However, when garlic is cut, crushed, or otherwise bruised, the alliin then makes contact with the enzyme *allinase*. This contact converts alliin into *allicin*, which is not only responsible for garlic's strong, characteristic odor, but for its potent health benefits as well. Note: This is the major factor missing in deodorized garlic.

Allicin is a volatile compound. Unless stabilized, (such as freeze-drying or low temperature heat-drying), the allicin converts itself to a number of strong smelling sulphides, including diallyl sulphide, disulphide, trisulphide. While these sulphides are equally effective at protecting the circulation and lowering cholesterol levels, it is the stronger allicin component that kills bacteria and fungi.

It was Louis Pasteur who in 1858, first proved that garlic was an antibiotic by demonstrating how it could kill bacteria in laboratory culture dishes. In the last two decades over 1,000 papers have been published internationally regarding garlic's health benefits. The following are just a few samples of garlic's effectiveness against a number of disorders:

- **Infection--** Studies have repeatedly confirmed that garlic is effective against bacteria, yeast, and fungi. It is, in fact, as strong as numerous prescription drugs, and certainly safer. Garlic is anti-parasitic, antiviral and anti-protozoan, as well. It has been found effective against opportunistic microbes such as the herpes virus and Candida. Even antibiotic-resistant bacteria succumb to garlic's potent properties. Garlic has also been found to be effective against E-Coli.

Externally, garlic has been used successfully to treat wound and open sore-infections in the form of fresh compresses.

- **Circulation/Heart Health--** Studies show that when garlic is consumed with a fatty meal the resulting level of fats and cholesterol in the blood are dramatically reduced. When taken for a couple of months garlic can reduce the level of blood cholesterol by 15%, more if combined with a proper diet. Studies in India showed that garlic actually lowered blood cholesterol even when consumed with a quarter pound of butter! When taken regularly, garlic significantly lowers LDL (bad) cholesterol which protects against artery-hardening plaque.

In addition to lowering blood fats, garlic has antiplatelet activity. In other words garlic inhibits blood clotting. This 'blood thinning' effect reduces the risk of strokes that are caused by clots lodging in the brain, or the risk of heart attacks caused by clots blocking the coronary arteries which oxygenate the heart muscle.

Dozens of studies confirm these effects with more being published nearly every month. For example, a study at a Medical Research Council in Oxford, U.K., has shown that if you eat just a half a clove of garlic it significantly thins the blood.

Garlic also lowers blood pressure. It appears to accomplish this by mimicking prostaglandin E-1, which decreases resistance in the peripheral blood vessels.

- **Cancer--** Currently, garlic's anti-tumor and anti-cancer effects are the most intensely studied. Both garlic and onions inhibit an enzyme believed to promote tumors. Garlic extract inhibits chemically induced cancer, preventing chemical reactions leading to tumor formation and completely preventing the first stage of skin cancer development. The compound that appears to be the most effective against cancer is diallyl sulphide. It inhibits colon cancer and reduces radiation damage, thus decreasing cancer risk and reducing damage from radiation treatments.

(4)

Numerous studies confirm the anticancer effects of garlic, but perhaps none so significantly as a study published in the "Journal of the National Cancer Institute". This large scale study involved 1,800 Chinese people, of whom 685 had stomach cancer. Most of the patients with stomach cancer were people who ate little or no garlic. Researchers found that residents of a region in China who did not consume garlic had 1,000 times more incidents of stomach cancer than those in a region who consumed large quantities of garlic regularly. The researchers found that the more garlic and other Allium vegetables (onions, scallions, chives) eaten, the lower the risk of stomach cancer.

Garlic has other health benefits as well. Studies show that garlic reduces blood sugar levels in both laboratory animals and humans, making it a useful addition to any diabetic's diet.

European studies show garlic helps eliminate lead and other toxic heavy metals from the body. It protects liver membranes from oxidation damage (lipid peroxidation), thus increasing the life and function of liver cells. Garlic also helps detoxify the liver.

Ancient Ayurvedic healers used garlic to treat leprosy (now known as Hansen's disease). Contemporary scientists have revealed these ancient healers were onto something. In a study in India, researchers gave Hansen's sufferers a garlic ointment and food containing large amounts of the herb. Compared with others who did not receive the herb, those in the garlic group showed significant improvement.

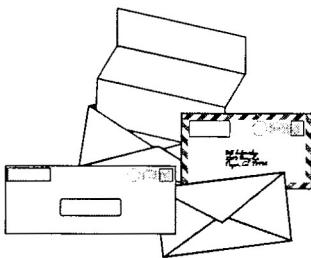
Today's researchers are also looking at garlic as a useful adjunct in the treatment of AIDS. In a recent study, seven AIDS patients who ate a clove of garlic a day for three months experienced significant increases in immune functions usually destroyed by the disease. In addition, while the patients were taking the garlic, chronic herpes sores cleared up in two of the seven, and in two others chronic diarrhea, a common AIDS symptom, also improved.

This should come as no surprise, as numerous studies have demonstrated that garlic stimulates the immune system directly. This is one of the reasons Juliette de Bairacli Levy chose garlic as the base for her NR Herbal Compound. I continue to supplement all my dogs with these and strongly recommend regular usage of this particular formula for all animals.

I am continually amazed at the orthodox medical community when they insist that there is no "science" to confirm the effectiveness of traditional remedies. Surely a few thousand years of experience and thousands of research papers should count for something!

While the "Quack Busters" cry fake, I will continue to quietly utilize this ancient herb for all of my family. By so doing I hope to avoid ever having to resort to the dangerous pharmaceuticals deemed "safe" by these same howlers in the night.

MAILBOX



Following is a series of E-mail correspondence involving 4 kittens and FIP (other adult cats were also in the same household). To clarify the situation I will refer to them as:

- G--Male, vaccinated, died at vet's office
- C--Female, vaccinated, put on natural program
- P--Female, vaccinated, put on natural program
- L--Male, not vaccinated, put on natural program

July 16-- I got the shipment today for the kittens and started them on everything right away. I was afraid of the FIP nosode just because of that bad experience I had with trying the vaccine. I gave it to the three of them first and the adults will get it tonight.

My little boy seems better today. His name is (L). He is eating like a pig and his breathing is better. I still think there is some fluid in his stomach area. The other two kittens show no signs of the disease other than a few sneezes here and there.

I did call my vet about the interferon and he has not called me back. I will wait another day. I will let you know how it goes with these kittens and cats. I feel like I am a nurse giving all of these meds to sick patients and they hate me every time they hear me grind something or unscrew tops. The little boy is running around the house like a maniac. The kitten that died never recovered when he was on antibiotics and he couldn't run at all.

July 18--I am very pleased with (L) progress. He looks soooo much better. He still has a bit of a clear runny nose and is sneezing. He seem to have a better appetite and I even think he has put on some weight. The smallest kitten started to get a bit of a runny nose yesterday and is better today. The third kitten has never shown any signs of getting sick. The adult cats are also fine so far.

I did call the vet back and he ordered the interferon for me. I also asked the vet if he would be able to prove the kitten had FIP after he recovers. He did autopsy the first kitten (G) and he did have FIP. This kitten (L) had all the same problems and was pretty lifeless when I started all of the natural remedies. The advantage I think is this kitten was larger and never received any of the vaccines like poor (G)

did. However the other two females received the same series including the Feline Leukemia.

July 23-- This is an update on the kittens. I have had them on the medication for one week now. The black kitten (C) started showing signs on Monday night. They are doing well now. The fourth kitten (P) has been free from the disease to date. I have done a lot of things besides the meds you sent. I would like to share some of what I am doing with them.

I started making food for them last week using ground turkey, hamburger, and liver (from home raised beef, no grains or hormones). I added lots of garlic, brewers yeast, ground flaxseed, oat bran, wheat germ, cooked brown and white rice. Each of the meats were used separately. To the mixtures I added digestive enzymes, ground Astragalus and liquid vitamin C and of course more garlic in a liquid form. I add more digestive enzymes (lactobacillus acidophilus) to the food each time I feed. I am giving them Ambertose and since this is an aloe product, I started giving the 200:1 gel with other tinctures added to it and a little water. I stuff as much aloe down them as I can and I believe it has dramatically healed the ulcerated intestines and has actually reduced the fluid that started to fill in their abdominal cavity (this is what I was told caused them finally to die--because they can't breathe). I experienced this first hand with the first kitten that died at the vet's office. The vet showed me the fluid in his stomach area and the kitten was gargling and gasping for air.

The second kitten has gotten fluid and a few days ago the third kitten got lots of fluid in her abdominal cavity. The aloe helped to reduce this within hours of taking it. The nose and mouth of (L) has healed and the snot and discharge is at a minimum. Breathing is great and he is running around the house like a maniac. He sleeps with me every night (he is the only one that always uses his litter box) and the other two go outside. Each night I monitor whether he gets a fever. He seems to have beaten that too. He seems to have put on lots of weight.

I don't know if you use Aloe Vera, however, the research I have done on the internet has recommended it for all kinds of intestine problems. Hence I tried it and I am convinced it is great for this disease. I don't really know what elements or combinations have started them on the road to beating this fatal disease, however, I am really pleased with what has happened to date.

July 31--Kittens are doing wonderful. I have stopped the meds from Marina (as she said to do) except for the Chinese herb and have continued to add garlic, liquid vitamins and liquid aloe vera to their food. I am still making their food. They have had fish, turkey, liver and mackerel. I love the mackerel because it masks all of the stuff I am adding to their food.

I am very happy with the kittens' progress. They have put on lots of weight and look marvy. I monitor them many times during the day when I am home. I look for signs that they might be relapsing into the disease. I will continue them on the FIP nosode as directed in 4 months.

I have written all of this treatment down and I am going to give it to my vet. I hope he considers some of this. I also went to one of the local pounds to discuss the FIP disease and told her it would be helpful to add garlic to the food to help stop the spread of viruses. I wanted to let her know that some very simple products have a great history of killing viruses. She was thrilled.

I am thankful to Marina and for the opportunity to revisit holistic treatments. I have done a lot of reading and studying to try and beat this disease. I guess I need this to force me to come back to what I know in my heart is right. Antibiotics should be a dirty word. I know they have a place, however, I will not use them for my animals if I can ever help it again, and I will never vaccinate my kittens again. I am sorry I lost my little (G) because I was uninformed. These three kittens are so lucky to be alive. FIP is not fatal and it can be cured if you want to take the time and invest in a holistic approach. Thank you, thank you, thank you, thank you (one from me and three from them). Also my grown cats thank you too.

This is a case of an owner making a complete switch to natural treatments. Note the change to a raw diet (with copious quantities of garlic), utilization of homeopathics, Chinese herbs, vitamins and aloe vera. We will never know which one tipped the scales but I think the owner is more interested in the end results rather than trying to isolate any one modality. Thank you for sharing the details of your experience. Let's hope it helps others that may find themselves in similar circumstances.

Sometimes we can help with emergency situations. Again, the following series of E-mail correspondence tells the story.

July 27--Hi Marina, I'm watching (J) for a friend because she was bitten by a rattle snake this morning. My friend took (J) to the vet and they gave her antihistamine and steroid shots. Also, they gave her prednisone and antibiotics for later. She is in a lot of pain with severe head/face swelling.

Her throat has also become very large and swollen. She seems to be breathing O.K., but she looks awful! What do you recommend??

July 27--Hi :
Firstly, follow the vet directions. Also give:
For the immediate symptoms and toxins:

- Ledum 1M
- Apis Homacord
- Traumeel--dose frequently for inflammation

To help clear the system of the toxin:

- Nux Vomica (ampule)
- Detoxification Factors
- Bromelain

We can send these overnight to you if you wish.

July 28--Hi Marina

Thanks for sending the products for my dog. I'm in the process of administering them, and hope I can see some results soon.

For your information, she's still pretty swollen in the face. I can also feel a lot of heat coming off her lips and mouth area, as I think I located where she was struck. Unfortunately, it looks like she was hit in the upper inside of the lip from two red inflamed marks there.

Once the swelling gets under control, is there anything that can be done topically to ensure that when the flesh dies off she will still be able to eat and/or that it won't get infected. My plan is to continue to feed her regularly, but I plan on keeping exercise to a minimum just to keep her strength up. The vet has given me a wait and see attitude and hinted that really nothing can be done to accelerate the healing process. Obviously with what you have sent I feel differently. The next week or so should tell me much more and hopefully she will continue to improve.

Aug. 4--It's been a week and the healing has been nothing short of amazing. She is completely back to normal in her face, head and chest as far as the swelling goes, and running around like her old self. Thanks for all the help!

I would like to know what purpose each of the homeopathics and capsules serve. I may have some extra after this is over and would like to know when and how to use them if another unfortunate situation arises. Can you briefly explain what the benefits/uses are?

- Ledum 1 M is a homeopathic remedy specific for puncture wound, stings and bites.
- Apis Homacord is a multiple homeopathic remedy specific for tissue swelling.
- Traumeel is a special homeopathic remedy used worldwide and has broad application as an anti-inflammatory agent.
- Nux Vomica was recommended in this case to assist with detoxification.
- Detoxification Factors as its name implies, is used to assist in the detoxification process. It is effective for both phases of liver detoxification.
- Bromelain, given on an empty stomach, decreases inflammation and helps to remove toxins from tissues thus helps to speed healing.

In this instance the owner was also concerned with secondary infection and that the flesh around the bitten area would die off and cause further problems (which can happen). Fortunately with the use of the support remedies, normal healing occurred without further complications, in a relatively short period of time.

(6)

MAGNESIUM

Magnesium deficiency is one of the most common nutritional problems in America and the clinical consequences of this deficiency are many and varied.

It is second to potassium in terms of concentration within the body's cells. Magnesium participates in more than 50 different biochemical reactions in the body. It is needed for growth and development, wound healing, immune-system function, temperature regulation, and many activities of the brain and nervous system. It also plays a role in muscle contraction (both heart and skeletal muscle), muscle relaxation (i.e. reducing muscle spasm), and regulating blood clotting. In addition, magnesium is required for the production of ATP (adenosine triphosphate), the molecular "power cell" on which the body depends for nearly all of its energy dependent processes.

Approximately 60% of the magnesium in the body is in bone, 26% in muscle, and the remainder in soft tissue and body fluids. However, the tissues with the highest magnesium concentration are those that are the most metabolically active (brain, heart, liver, and kidney)--thus magnesium's critical role in energy production.

Considering the long list of conditions that can be prevented or treated with magnesium, a strong case can be made that there is an epidemic of magnesium deficiency in our society. There are three probable reasons that causing this to happen.

First, there is probably a lot less magnesium in the American diet than there was a century ago. Modern food processing techniques cause considerable amounts to be lost. For example, when whole wheat is refined into white flour, 85% of the magnesium is lost. The losses from processing are compounded by modern farming methods that deplete the soil (and consequently the crops) of essential minerals. Remember that commercial pet foods start with the worst of the worst raw material and that the processing is the cheapest (worst for nutritional retention) available.

The second likely reason is that biochemical and emotional stresses of modern living cause the loss of substantial amounts of this important mineral. For example, aluminum and lead (common environmental pollutants) appear to increase our requirements for magnesium. In addition, exposure to noise or other types of stress will increase urinary magnesium excretion and reduce the magnesium concentration in various tissues of the body. Does anyone seriously think that our animals are not exposed to stress at show time?

A third factor is that many disease processes will themselves lead to magnesium deficiency. Thus, a vicious cycle may develop in which magnesium deficiency promotes an illness that in turn further aggravates the deficiency.

One of the most important uses for magnesium is for the prevention and treatment of heart and blood vessel diseases.

(7)

Magnesium is absolutely essential in the proper functioning of the entire cardiovascular system. Magnesium's critical role in preventing heart disease and strokes is now widely accepted. In addition, a substantial body of knowledge demonstrates that magnesium supplementation is effective in treating a wide range of cardiovascular diseases. Magnesium supplementation has been used in many of these applications for over 50 years.

Acute myocardial infarction is the medical term for a heart attack. Intravenous magnesium therapy is a valued treatment for MI and is used as a first choice in many parts of the world, other than the U.S. The major obstacle to its acceptance as the preferred method of saving a person's life is financial interests. Magnesium is cheap compared to the new, high-tech, high-priced, genetically engineered drugs currently being promoted by pharmaceutical companies.

It is noteworthy that magnesium can perform single-handedly many of the functions attributed to a wide variety of cardiac medications. For example, magnesium inhibits platelet aggregation (like aspirin), enhances fibrinolysis (like "clot-busting" drugs), blocks calcium channels (like drugs such as Procardia) and dilates blood vessels (like ACE inhibitors such as Vasotec).

To gain some perspective on the wide difference in treatment costs consider the case of cardiac arrhythmia. In the treatment of new-onset atrial fibrillation (AF) the drug of choice is digoxin, which unfortunately offers no better treatment than a placebo. Several studies in AF patients taking magnesium caused researchers to conduct a study to determine if magnesium and digoxin were better than digoxin alone. The benefit of magnesium was obvious within the first 15 minutes; heart rate decrease immediately from an average of 130 to 120. After 24 hours, the group that received magnesium had an average heart rate of roughly 80, while the group that received only digoxin had an average heart rate of 105. The study indicates that magnesium either greatly improves the efficacy of digoxin or exerts significant effect on its own.

Here's the financial kicker. Instead of using the results of these studies, drug company research focused on newer drug therapies for new-onset AF such as esmolol and diltiazem. Difference in cost of treatment? Over a 24-hour period, a patient with new-onset AF requires approximately 6 grams of esmolol (\$400) or 300 milligrams of diltiazem (\$200) compared to 10 grams magnesium sulfate (\$1) or 2 milligrams of digoxin (\$2) or their combination. Which treatment do you suppose will be pushed by the drug companies?

Magnesium supplementation may offer significant protection against strokes. The blood vessels supplying the brain are extremely sensitive to magnesium status. When magnesium levels are low, vascular spasm results. This vascular spasm sometimes results in a stroke or transient ischemic attack. Conversely, with magnesium supplementation the cerebral arteries usually relax and blood flows better through the brain.

There are many other benefits of this versatile nutrient.

Pregnancy: What should be of interest to all of you planning to breed is that magnesium requirements increase during pregnancy. Magnesium deficiency is directly linked to preeclampsia (a serious condition of pregnancy associated with elevations in blood pressure, fluid retention, and loss of protein in the urine), pre-term delivery, and fetal growth retardation. In contrast, supplementing the diet with additional oral magnesium shows a significant decrease in the incidence of these complications.

Kidney Stones: A quick way to produce kidney stones in animals is to put them on a magnesium deficient diet. Magnesium increases the solubility of calcium in the urine, thereby preventing stone formation. Supplementing the diet with magnesium significantly prevents recurrences of kidney stones. When used in conjunction with vitamin B6 (pyridoxine), an even greater effect is noted.

Magnesium citrate is the most beneficial form of magnesium in the treatment of kidney stones. Citrate reduces urinary saturation of stone-forming calcium salts because it forms complexes with calcium. It also retards the nucleation and crystalline growth of the calcium salts. If citrate levels are low, this inhibitory activity is not present and stone formation can occur. Low citrate levels result from a variety of metabolic disturbances (acidosis, chronic diarrhea, urinary tract infection, etc.) but in general researchers do not know the reason for low levels in many individuals who develop kidney stones.

Fatigue: Magnesium is required for the production of ATP (the chemical form of stored energy that powers most bodily functions). An underlying magnesium deficiency, even if "sub-clinical", can result in chronic fatigue and symptoms similar to chronic fatigue syndrome (CFS). During the 1960's some impressive results were obtained in clinical trials of patients suffering from chronic fatigue. These studies used oral magnesium and potassium aspartate (1 gram each). Between 75 and 91 percent of the nearly 3,000 patients studied experienced relief of fatigue during treatment. The beneficial effect was usually noted after 4 to 5 days, sometimes after 10 days. Patients usually continued treatment for 4 to 6 weeks; frequently fatigue did not return later.

Migraine: Magnesium has been used both to prevent and treat migraines. Several researchers link low magnesium levels with both migraine and tension headaches. A magnesium deficiency sets the stage for the events that can cause a migraine attack or a tension headache. Reduced levels of magnesium are found in the serum, saliva, and red blood cells of migraine sufferers. This indicates a need for supplementation because one of magnesium's key functions is maintenance of blood vessel tone.

Despite the number of clinical studies that show magnesium supplementation (as well as elimination of food allergies) is effective in many cases, most physicians choose to prescribe drugs that usually have only moderate benefits and significant side effects. Another possible benefit of magnesium in migraine sufferers may be its ability to improve mitral valve prolapse, which is linked to migraines. Mitral valve prolapse leads to changes in blood platelets, and (8)

these changes cause the platelets to release substances that ultimately cause expansion of blood vessels in the head.

Osteoporosis: Magnesium supplementation is as important as calcium supplementation in the treatment and prevention of osteoporosis.

In a study of nineteen women with osteoporosis, sixteen were found to have significant magnesium deficiency. Interestingly, magnesium status appeared to have a major influence on the type of crystals present in the bones of these women. Among the sixteen women with magnesium deficiency, the size and shape of their bone mineral crystals were abnormal in every case. On the other hand, each of the three women with adequate magnesium status had normal bone mineral crystals. This study demonstrates that magnesium deficiency is very common in women with osteoporosis and that the deficiency may cause bone mineral crystals to develop abnormally. Presumably, defective bone mineralization would result in weaker bones and would increase the risk of fractures. In addition to promoting higher quality bone, magnesium also appears to help or reverse bone loss. Several studies suggest that magnesium may be even more important than calcium in preventing age related bone loss.

Many nutritional experts feel the ideal intake for magnesium should be based on body weight. They recommend 6 milligrams per 2.2 pounds of body weight.

The best food sources for magnesium include kelp, wheat bran, wheat germ, almonds, and other whole grains, nuts, seeds, legumes, and green vegetables. Remember these must be raw to gain the full benefit of their magnesium content.

The benefits of magnesium are many and varied. Furthermore, this mineral is extremely safe and quite inexpensive.



Publishers Notice

Due to unavoidable circumstances we will not be publishing our regular November issue of the newsletter. The next issue will be in January. This will not affect the number of issues in your subscription. Thank you for your kind understanding.



"Till next time, take care out there